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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,030

04/26/2005

Seiji Kai

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2194

26021 7590 04/29/2008

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EXAMINER

LOPEZ ESQUERRA, ANDRES

ART UNIT

PAPER NUMBER

2818

MAIL DATE

DELIVERY MODE

04/29/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,030	<b>Applicant(s)</b> KAI ET AL.	
	<b>Examiner</b> ANDRES LOPEZ ESQUERRA	<b>Art Unit</b> 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03/14/2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Acknowledgement is made of Amendments filed March 14, 2008.

### ***Election/Restrictions***

2. Claim 4 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II, Species I, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 5, 2007.

### ***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 103***

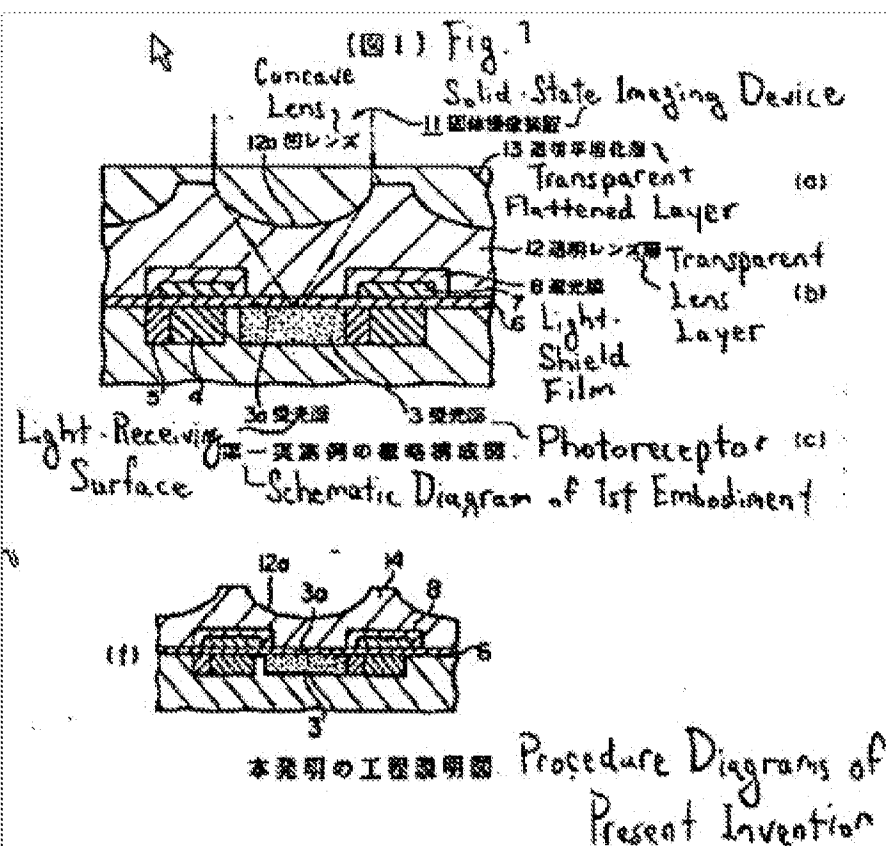
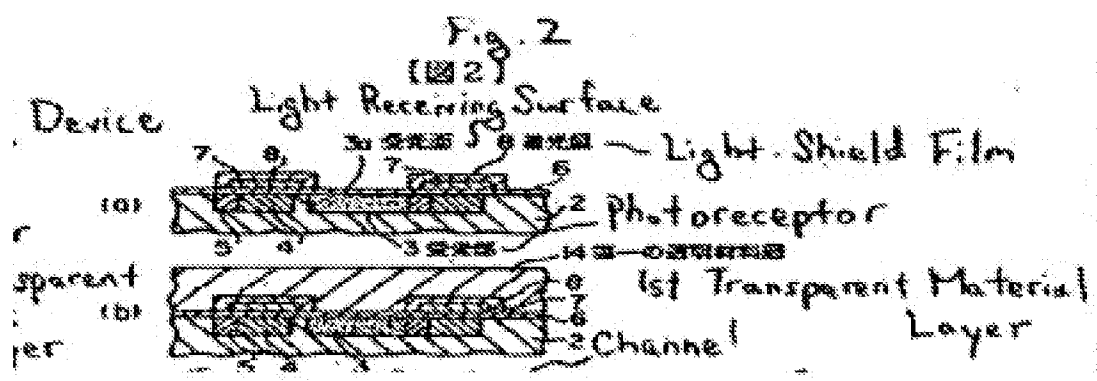
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**6. Claims 5 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jyunya Suzuki et al. (Japan Publication No. 9-27608) (Suzuki) in view of Sano et al. US 6,030,852 (Sano).**

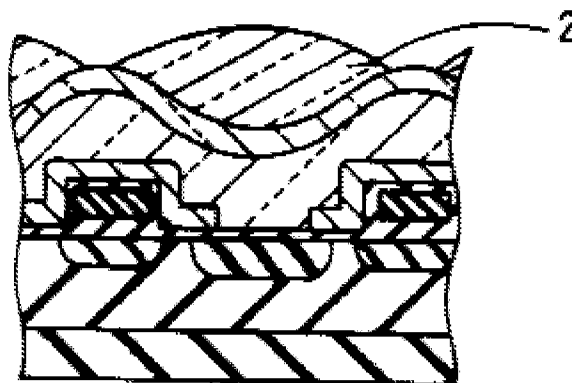


7. As for claim 5, Suzuki discloses and shows in Figs. 1, 2c, and 2f a method of manufacturing a solid state imaging device comprising:

- a. an underlayer film (12/14) etching step for etching a fiat light transmitting insulating film along a predetermined mask pattern to form regions between adjacent micro lens forming regions (Suzuki discloses (Pages 10 – 12, [0017] - [0018]) the use of etching to create the convex form of the layer);
- b. a lens film laminating step for laminating a light transmitting lens film (13) on the underlayer film; and;
- c. an etching step by etch back processing of the lens film (Suzuki discloses (Pages 10 – 11, [0017] – [0018]) that the flattening process of layer 17, which is also applied to the layer 13, is done by etching the same).

8. Suzuki fails to disclose the creation of concave regions over the convex regions when flattening the lens film (13) as well as making the regions between adjacent micro lens forming regions to be convex and that the laminating layer reflects a shape of the underlayer film.

**FIG. 6 ( c )**



9. Sano discloses (Col. 11, lines 15 – 30) and shows in Fig. 6(a) – 6(c) the method of crating a concave lens (2) on top of a convex region in a solid state imaging device

by etching. It also shows the limitation of having the underlayer layer (6) to have convex regions between adjacent micro lens forming regions as well as the laminating layer (5) to reflect the shape of the underlayer film.

10. Sano is evidence that ordinary workers in the art would find a reason, suggestion or motivation to create a concave lens on top of the convex region of the solid state imaging device, and also the underlayer layer (6) to have convex regions between adjacent micro lens forming regions as well as the laminating layer (5) to reflect the shape of the underlayer film.

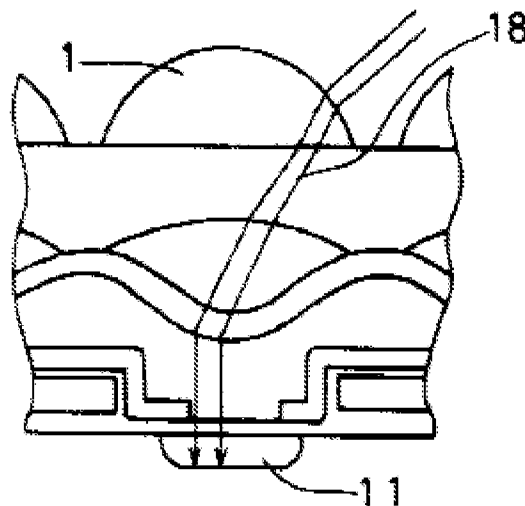


FIG. 3

11. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Suzuki by etching the flatter layer (13) all the way until creating a concave lens on top of the convex region of the solid state imaging device and also the underlayer layer (6) to have convex regions between adjacent micro lens forming regions as well as the laminating layer (5) to reflect the

shape of the underlayer film for advantages such as improving the sensitivity of the structure when the diaphragm of the optical lens is open (Col. 12, lines 3 – 7) as shown in Fig. 3.

12. As for the limitation of “wherein the lens film has a refractive index higher than that of a substance provided in a layer above the lens film”, the same is present since the only substance in Fig. 1 over the lens film (13), which has a refractive index of about 1.5 – 1.7 (Page 8, [0013]), is air with a refractive index of about 1.

13. As for claims 6 – 7, Suzuki discloses (Pages 10 – 12, [0017] – [0018]) the steps of anisotropically etching the insulating film (12/14) follow by isotropically etching the same and also discloses (Page 8, [0013]) that the refractive index of the lens film (13) is about 1.5 – 1.7 and the insulating film is about 1.2 – 1.4.

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 5 – 7 have been considered but are moot in view of the new ground(s) of rejection.

15. As per applicant's argument (Page 7, line 10 - Page 8, line 13):

“Claims 5-7 are rejected under 35 USC 103(a) as obvious over Suzuki (JP 9-27608) in view of Sano (US 6,030,852). In response, applicant traverses the rejections and amends claim 5 to clearly distinguish over Suzuki and Sano...”

16. examiner respectfully disagrees.

17. Applicant's argument go toward the fact that the combination of Suzuki in view of Sano do not disclose all the limitations in independent Claim 5, specifically that the underlayer film do not have the shape as claimed and that the laminating film do not reflect the underlayer film, both of which, as explained in paragraph 9 of the present Office Action, are present in the combination of Suzuki in view of Sano.

***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2003/0168678, US 2005/0110052, and US 2001/0036014.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDRES LOPEZ ESQUERRA whose telephone number is (571)272-9753. The examiner can normally be reached on M - Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven H. Loke can be reached on (571) 272 - 1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2818

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrés López-Esquerro  
Examiner  
Art Unit 2818

ALE

/DAVID VU/  
Primary Examiner, Art Unit 2818